

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 0094.065WO	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2004/016718	International filing date (<i>day/month/year</i>) 27 May 2004 (27.05.2004)	Priority date (<i>day/month/year</i>) 30 May 2003 (30.05.2003)]
International Patent Classification (IPC) or national classification and IPC ⁷ C08F 2/38, 20/10, 12/08, C07C 327/18, 329/12		
Applicant RENSSALAER POLYTECHNIC INSTITUTE		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).

2. This REPORT consists of a total of 10 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Box No. I Basis of the report |
| <input checked="" type="checkbox"/> | Box No. II Priority |
| <input type="checkbox"/> | Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI Certain documents cited |
| <input type="checkbox"/> | Box No. VII Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 740 14 35</p>	<p>Date of issuance of this report 01 December 2005 (01.12.2005)</p> <p>Authorized officer Simin Baharlou</p> <p>Telephone No. +41 22 338 71 30</p>
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 21 OCT 2004

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To:

see form PCT/ISA/220

16/12

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/US2004/016718

International filing date (day/month/year)
27.05.2004

Priority date (day/month/year)
30.05.2003

International Patent Classification (IPC) or both national classification and IPC
C08F2/38, C08F20/10, C08F12/08, C07C153/03, C07C154/02

Applicant

RENSSELAER POLYTECHNIC INSTITUTE

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b/s(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/016718

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - in written format
 - in computer readable form
 - c. time of filing/furnishing:
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/016718

Box No. II Priority

1. The following document has not been furnished:

- copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
 translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3,4,6-9,17,18
	No: Claims	1,2,5,10-16
Inventive step (IS)	Yes: Claims	3,4,6-9,17,18
	No: Claims	1,2,5,10-16
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

- 1 The following documents are referred to in this communication:
D1 : US 6 153 705 A (CHARMOT DOMINIQUE ET AL) 28 November 2000
(2000-11-28)
D2 : US 3 646 094 A (BROOKS DAVID HUGH ET AL) 29 February 1972 (1972-02-29)
- 2 INDEPENDENT CLAIM 1
 - 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT. Document D1 discloses a free radical polymerisation process comprising at least one monomer, a free radical initiator and a chain transfer agent (D1: examples 1.9, 1.12 and 2.21). The chain transfer agents according to examples 1.9, 1.12 and 2.21 have alkyl rests R² (R² as defined in claim 1 of the present application) and alkoxy rests R¹ (as defined in claim 1 of the present application).
- 3 INDEPENDENT CLAIM 11
 - 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 11 is not new in the sense of Article 33(2) PCT. Example 5 of document D2 discloses an α-cyano-dithiocarboxylic ester compound as claimed in claim 11 of the present application. The compound of example 5 of D2 has a thioalkyl rest R¹¹ (R¹¹ as defined in claim 11 of the present application) and a substituted alkyl rest R² (R² as defined in claim 11 of the present application).
- 4 DEPENDENT CLAIMS 2, 5, 10 and 12-16
Dependent claims 2, 5, 10 and 12-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT). Claims 12-15 are not novel because of the unclarities discussed under item 7 of this communication. It seems that the applicant tries to enlarge the

scope of said claims by the unclear formulation.

5 DEPENDENT CLAIMS 3, 4, 6-9, 17 and 18

Dependent claims 3, 4, 6-9, 17 and 18 are novel over D1 and D2 within the sense of Article 33(2) PCT. The distinguishing features are specific rests R² and R¹ or R¹¹ in the structure of the compounds as disclosed in independent claims 1 and 11.

6 Inventive step

6.1 Inventive step of claims 3, 4 and 6-9

The closest prior art document is D1.

The problem to be solved is to provide further low odour chain transfer agents.

The applicant solves the problem by the distinguishing feature.

In none cited prior art document incentives to such a problem solution are given.

Thus claims 3, 4 and 6-9 involve an inventive step within the sense of Article 33(3) PCT.

6.2 Inventive step of claims 17 and 18

Neither D1 nor D2 gives incentives to the synthesis of compounds according to claims 17 and 18 of the present invention. Thus said claims involve an inventive step within the sense of Article 33(3) PCT.

7 Industrial applicability

Industrial applicability of the invention disclosed in claims 1-18 is given on the field of free radical polymerisation within the sense of Article 33(4) PCT.

Re item VIII.

8 Clarity of the subject-matter of claims 12-15

The subject-matter of claims 12-15 is unclear within the sense of Article 6 PCT. Said claims refer back to independent claim 11. Claim 11, however, contains no rest R¹ in contradiction to claims 12-15.

Thus the matter for which protection is sought is not disclosed in a clear and

**WRITTEN OPINION OF THE
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AUTHORITY (SEPARATE SHEET)**

International application No.

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concise way.

Re Item V.

- 1 The following documents are referred to in this communication:
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(2000-11-28)
D2 : US 3 646 094 A (BROOKS DAVID HUGH ET AL) 29 February 1972 (1972-02-29)

2 INDEPENDENT CLAIM 1

- 2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT. Document D1 discloses a free radical polymerisation process comprising at least one monomer, a free radical initiator and a chain transfer agent (D1: examples 1.9, 1.12 and 2.21). The chain transfer agents according to examples 1.9, 1.12 and 2.21 have alkyl rests R² (R² as defined in claim 1 of the present application) and alkoxy rests R¹ (as defined in claim 1 of the present application).

3 INDEPENDENT CLAIM 11

- 3.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 11 is not new in the sense of Article 33(2) PCT. Example 5 of document D2 discloses an α-cyano-dithiocarboxylic ester compound as claimed in claim 11 of the present application. The compound of example 5 of D2 has a thioalkyl rest R¹¹ (R¹¹ as defined in claim 11 of the present application) and a substituted alkyl rest R² (R² as defined in claim 11 of the present application).

4 DEPENDENT CLAIMS 2, 5, 10 and 12-16

Dependent claims 2, 5, 10 and 12-16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT). Claims 12-15 are not novel because of the unclarities discussed under item 7 of this communication. It seems that the applicant tries to enlarge the

scope of said claims by the unclear formulation.

5 DEPENDENT CLAIMS 3, 4, 6-9, 17 and 18

Dependent claims 3, 4, 6-9, 17 and 18 are novel over D1 and D2 within the sense of Article 33(2) PCT. The distinguishing features are specific rests R² and R¹ or R¹¹ in the structure of the compounds as disclosed in independent claims 1 and 11.

6 Inventive step

6.1 Inventive step of claims 3, 4 and 6-9

The closest prior art document is D1.

The problem to be solved is to provide further low odour chain transfer agents.

The applicant solves the problem by the distinguishing feature.

In none cited prior art document incentives to such a problem solution are given.

Thus claims 3, 4 and 6-9 involve an inventive step within the sense of Article 33(3) PCT.

6.2 Inventive step of claims 17 and 18

Neither D1 nor D2 gives incentives to the synthesis of compounds according to claims 17 and 18 of the present invention. Thus said claims involve an inventive step within the sense of Article 33(3) PCT.

7 Industrial applicability

Industrial applicability of the invention disclosed in claims 1-18 is given on the field of free radical polymerisation within the sense of Article 33(4) PCT.

Re item VIII.

8 Clarity of the subject-matter of claims 12-15

The subject-matter of claims 12-15 is unclear within the sense of Article 6 PCT. Said claims refer back to independent claim 11. Claim 11, however, contains no rest R¹ in contradiction to claims 12-15.

Thus the matter for which protection is sought is not disclosed in a clear and

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